

CERTIFYING STABILIZED MIXED WASTE

Blanca Haendler, Waste Certification Program

The Waste Certification Program (WCP) can now certify treated mixed waste (waste containing both hazardous and radioactive components) because of a new stabilization process. A silicate-based clay material is combined with the mixed waste's hazardous components. This stabilizes the hazardous components and enables the waste to be reclassified as low-level radioactive only. The stabilizing process was recently developed by the Hazardous Waste Management (HWM) Process Engineering Group. As low-level radioactive waste it can be disposed of at the Nevada Test Site (NTS).

However, before disposal can occur, the newly-rendered low-level radioactive waste must be sampled and analyzed. If the resulting analytical data meet all of the stringent requirements of the NTS disposal program, the waste can be certified.

The Environmental Analytical Sciences and Radiation Analytical Sciences Sections of the Environmental Protection Department (EPD) helped the WCP write a Sampling and Analysis Plan for this waste stream. The Plan contains sam-

pling procedures and methodologies, a list of required analyses, and sampling frequencies. When the samples are taken they are sent to an offsite laboratory that is qualified to analyze data for the NTS disposal program.

The data must then be validated before the waste can be shipped. The guidelines for the validation require a detailed inspection of all the raw data, calculations, and conclusions. The waste can be certified and shipped to NTS only after the data are validated by the WCP and after a report has been submitted to and approved by the U.S. Environmental Protection Agency and NTS.

This extensive collaborative effort among these different entities within EPD has created a new stabilization process and certification procedure that has the potential for significantly reducing the volume of mixed waste streams at the Laboratory. Currently this is particularly important because options for disposing of mixed waste are extremely limited nationwide.

AN INTERVIEW WITH COLLIN JONES

Kay Tracy, HWM Waste Studies Tech

Recently Waste Matters had the opportunity to speak with the newly-selected Hazardous Waste Management (HWM) Building 612 Storage Facility Supervisor, Collin Jones. The HWM B612 Facility is the first stop for waste generated at the laboratory after it is picked up on a waste run.

WM *Mr. Jones, what do you see as the primary goal of the B612 Facility?*

CJ To be more responsive to the needs of our customers, the generators. We'll be more proactive towards the generators in cooperation with the field services technicians by providing support and information regarding packaging requirements and materials. In addition, we will work closely with generators to ensure that all regulatory and safety issues are quickly addressed.



WM *How does the mission of the HWM B612 facility relate to the generators here at LLNL?*

CJ We provide a number of services. The goal is to make the job for generators as easy and worry-free as possible when it comes to waste handling, treatment, and disposal needs. In addition to maintaining a storage and shipping facility, the HWM B612 technicians support the generators by recommending 55-gal and 30-gal lever-lock lids for containers, performing retention tank pump-outs, and providing decontamination services for tanks and equipment.

WM *What would be the most important thing that generators could do to help you?*

CJ Overall, LLNL generators have been doing a good job, and we would like them to keep at it. However, if there is one thing I would emphasize, it is that generators should continue their efforts to minimize the generation of mixed waste. That is probably the most important thing that generators can do to help.

If readers want more information or would like to tour the Building 612 Facility, contact Dottie Hong at 4-4769.

SOLVENT WASTE

Hector Pedemonte & Raymond de Lavalette, HWM Review Chemists

If you have ever received a call from the HWM Chemist Review Office asking what the solvents in your waste were used for, you may have wondered why they need to know.

The answer is simple: Environmental Protection Agency (EPA) regulations require the HWM Chemist Review Office to have that information so it can determine how waste will be classified for disposal. EPA has designated a specific group of solvents as "F" solvents: F001 through F005. These designations are based upon the processes from which the solvents were generated.

For a solvent waste to be classified as "F" waste, it must be spent and have been used to mobilize or solubilize a constituent.

This will include the following types of processes:

- Cleaning with solvents
- Dip rinsing
- Equipment clean-out
- Flush rinsing
- Product rinsing
- Spray rinsing
- Stripping
- Solvent extraction
- Solvent recovery
- Vapor degreasing

The "F"-listed solvents are all organic. The waste description on the Waste Disposal Requisition (WDR) for a solvent from the "F" code list must state whether the starting concentration of the solvent was above 10 percent and whether the solvent was used in one of the above processes. Additionally, when your solvent waste contains ignitable hydrocarbons, a flash point should be provided.

These same solvents are not "F" listed when used in the following ways:

- Discarded unused, out-of-date product or chemicals
- Reagents, i.e., used in an experiment without having any other chemicals dissolved in it
- Used as a refrigerant
- Used as packing material, i.e., reactive chemicals packed under solvent
- Tagged with Carbon-14 or other radioactive isotopes
- Discarded off-specification material
- Used to trace chemicals in biological studies
- A constituent in a product used in one of the above examples.

"F" Codes	
Constituent	"F" Code
Acetone	F003
Benzene	F005
Carbon disulfide	F005
Carbon tetrachloride	F001
Chlorinated Fluorocarbon	F001
Chlorobenzene	F002
Cresylic Acid	F004
Cyclohexanone	F003
Cresols	F004
2-Ethoxyethanol	F005
Ethylacetate	F003
Ethyl Benzene	F003
Ethyl Ether	F003
Isobutanol	F005
Methanol	F003
Methylene Chloride	F001-F002
Methyl Ethyl Ketone	F005
Methyl Isobutyl Ketone	F003
Nitrobenzene	F004
2-Nitropropane	F005
n-butyl alcohol	F003
ortho-dichlorobenzene	F002
Pyridine	F005
Tetrachloroethylene (Perchloroethylene)	F001- F002
Toluene	F005
1,1,1-Trichloroethane	F001 - F002
1,1,2- Trichloroethane	F002
Trichloroethylene (Trichloroethene)	F001 - F002
Trichlorofluoromethane	F002
1,1,2-trichloro-1,2,2-trifluoroethane	F002
Xylene	F003

MSDS IN THE WORKPLACE

Patrick Gallagher, HWM Field Technician

Generators should always request a Material Safety Data Sheet (MSDS) from the manufacturer or supplier when ordering reagents or chemical-containing products. The Federal Hazard Communication Standard, 29CFR 1910.1200 and the Cal-OSHA Hazard Communication Standard, 8CCR 5194, require that an MSDS be obtained for each chemical-containing product and reagent and be kept in the workplace where it is being used.

This requirement for an MSDS ensures that the properties, hazards, and any special handling procedures are properly identified to all individuals who may come into contact with such chemical-containing products or reagents. A hazardous chemical material should not be used when an MSDS for it is not "in hand."

When ordering such products or reagents, request an MSDS whether or not the item is identified in Sax's Dangerous Properties of Industrial Materials, The Merck Index, or Hawley's Condensed Chemical Dictionary.

HWM requires an MSDS to properly characterize a chemical-containing product or reagent for disposal. It is a generator's responsibility, even in full-service areas, to provide MSDSs to HWM. This is part of a generator's waste disposal characterization process.

By the time a generator decides to get rid of old products and reagents, a manufacturer may have moved, gone out of business, or been bought by another company, making acquisition of an MSDS difficult if not impossible. If an MSDS cannot be obtained, extensive sampling might be required to characterize a product for disposal. Acquiring an MSDS when ordering a chemical-containing product or reagent would eliminate such problems.

In the event of a spill, an MSDS is necessary to establish proper cleanup methods and PPE requirements. If anyone comes into physical contact with a spill and needs medical attention, Health Services requires an MSDS to determine toxicity and proper decontamination procedures.

In summary, when ordering a chemical-containing product or reagent, request its MSDS. EPD recommends that generators not accept delivery if the MSDS is not included. File it in a binder labeled MSDS and keep it close to the work area where the chemical-containing product or reagent is being used.

For Chemical
Requests
Call CHEW
4-5055



"Take a Bite
Out of Waste"
CHEW
Chemical Exchange
Warehouse

TRAINING CALENDAR

EP0006

Hazardous Waste Generation and Certification

February 14	8:15-12:00
February 21	8:15-12:00
February 23	8:15-12:00
February 28	8:15-12:00
March 8	8:15-12:00
March 14	1:15-4:30
March 21	8:15-12:00
March 23	8:15-12:00
March 28	8:15-12:00

EP0100

Low-Level Waste Certification Overview

June 12	1:30-3:30
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EP0110

Low-Level Waste Generation & Certification

April 10	8:15-12:00
April 6	8:15-12:00

Classes will be held in the Discovery Room, T5475. For additional information, contact Linda Lucchetti at 2-9236.



EPD TRAINING COURSES

Each issue of Waste Matters contains a Training Calendar. Some of the courses that will be sponsored by EPD in 1995 are listed in the calendar to the left. Other EPD courses will be listed in subsequent issues when their class times become available. To enroll in any of these courses, complete a Course Registration Form, secure the necessary approval signatures, and send the form to the EPD training coordinator at L-626. If the class you select is filled, a confirmation will be sent to you indicating an alternate date. All classes will be held in the Discovery Room (1145) in T5475. For more information, call Linda Lucchetti in the EPD Training Section at 2-9236.

DID YOU KNOW THAT...



... December 7, 1994 was the one-year anniversary of the pilot program to reclaim and recycle used batteries at LLNL?

Because of its success, and as a result of direct DOE funding for FY95, the Battery Reclamation Program will be expanded from five to seventeen stations, including a station at Site 300.

... To date, over 2000 pounds of batteries have been collected from only five reclamation stations?

Once the program is in full operation, an increased collection rate of about 300 percent is anticipated.

This year the program will develop a guidance document that will consist of standard drawings for fabricating reclamation stations and information about procurement costs. The guidance document will be made available to other DOE facilities, municipalities, and the private sector in the hope that LLNL's program can serve as a model for others who want to implement their own programs.

... An intensive advertising campaign is being prepared to make all Lab employees aware of the program?

The Battery Reclamation Program encourages everyone at LLNL to start the new year off right by helping the Lab with its recycling efforts. For information on the Battery Reclamation Program, please contact Kyle Troche at 2-3256 or on Q-mail by finding KYLE.

LLNL HELPS TO HEAT SCHOOL CLASSROOMS

Phil Armatis—Pollution Prevention Group

Used oil that would have been disposed of offsite will heat Oregon classrooms this winter. In August, 6,700 gallons of Shell Diala oil was donated to Oregon as the result of a joint effort between the Lab and the State. The gift was the culmination of a plan to reuse government resources while simultaneously promoting the Department of Energy's (DOE) waste minimization goals.

The initiative began when Lasers and Defense Systems/Nuclear Design were faced with the task of removing oil storage tanks outside of B343 and B168 as part of the Tanks Assessments and Guidance Group's Tank Upgrade Project. After evaluating regulations and DOE guidance, EPD's Pollution Prevention Group and the Environmental Operations Group proposed turning this removal into a recycling effort.

The idea expanded to that of donating the used oil to the Oregon school system when the Donation, Utilization, and Sales Group joined the project. By the time the plan was finalized, the programs and four groups were partners in the project.

Each group had a different mission: compliance with tank regulations by removing or upgrading tanks, minimizing waste and pollution, re-utilizing LLNL resources, and complying with environmental regulations; yet each found a common ground. This donation saved LLNL approximately \$15,000 in hazardous waste disposal costs, saved the state of Oregon thousands of dollars in school heating bills, and proved that diverse groups can pull together to commit to waste minimization goals.



**HWM
HOTLINE
3-4806**



CARDBOARD RECYCLING TO START AT LLNL

Don Johnston, Newsline Staff Writer (reprinted with permission)

The Pollution Prevention Group, in conjunction with Donation Utilization & Sales (DUS) and Plant Engineering, is launching a Lab-wide cardboard recycling initiative in an effort to stay well ahead of state-mandated solid-waste reduction goals and the UC contract performance measure requiring a 10-percent reduction each year.

"We're way ahead of the state mandate," says Kent Wilson, LLNL's Non-hazardous Waste Minimization Coordinator. "We're very near the 50-percent reduction required by the Year 2000. However, continued waste reduction is required to meet the UC contract performance measure because it is based on different criteria than the state uses."

The estimated 10-20 tons of cardboard collected weekly will be bundled at DUS and sold to an outside recycling vendor, saving the cost of shipping the solid waste to a landfill and earning \$86 per ton.

Burgundy dumpsters stenciled "Cardboard Only" will be located next to trash dumpsters in 100 locations around the Lab for the convenience of employees and custodians. Only cardboard may be dumped into the 4-cubic-yard bins. Packing materials, plastic, metal, or other types of paper typically found in cardboard boxes are unacceptable.

The amount of cardboard diverted from the waste stream is more than enough to justify the purchase of the \$200,000 commercial baler that will bundle cartons at a rate of four to five tons per hour and open up other Lab recycling options. Newspapers, non-Lab phone books, magazines, and even aluminum cans can be compacted and bundled in the baler to be set up in the salvage yard.

Acquisition of the baler will allow the Lab to get higher prices for recyclable material, according to Wilson, because

vendors will not have to bundle it. The going price for loose cardboard ranges from \$0 to \$45 per ton, barely half the \$86 per ton the Lab will get for bundled cardboard.

Waste stream studies have shown that cardboard constitutes some 14 percent by weight and 37 percent by volume of the nonhazardous waste shipped to landfills each year by LLNL. Paper products in general account for about 50 percent of the waste generated at the Lab.

Savings in landfill costs alone for the diverted cardboard will save the Lab about \$25,000 a year by conservative estimates.

New federal regulations being drafted by the General Services Administration (GSA) would allow LLNL to funnel a portion of the annual recycling revenue back into Lab recycling programs. The Lab earns about \$400,000 a year from sales of recyclable material in addition to reducing disposal costs and gaining environmental benefits from reduced waste. Current government regulations prohibit returning those revenues to federal recycling programs.

"Should the legislation pass, we'd be well-positioned to increase recycling revenues even further," Wilson said.

Another potential "value added" of removing bulky cardboard from the waste stream is the possibility of reducing trash pick-up days from 5 to 3 or 4 days a week, according to Wilson.

In addition to cardboard recycling, year-round newspaper, magazine, and phone book recycling programs have been expanded. The ledger-paper recycling program has been expanded to include colored paper.

Employees with questions, suggestions, or ideas regarding LLNL pollution prevention are encouraged to contact the Pollution Prevention Group through the Earth Hotline at E-ARTH (3-2784).



**Environmental Protection Department
Hazardous Waste Management Division, L-620
Lawrence Livermore National Laboratory**

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To receive this bulletin, call 2-6761. The publishing staff welcomes any questions, suggestions, or ideas for articles; please contact the technical editors listed below.

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